CASGEM Monitoring Plan Summary

The goal of the CASGEM program is to regularly and systematically monitor groundwater elevations that demonstrate seasonal and long-term trends in California's groundwater basins and to make this information readily and widely available to the public. The CASGEM program will rely and build on the many, established local long-term groundwater monitoring and management programs.

In determining what information should be reported to DWR, the department will defer to existing monitoring programs if those programs result in information that demonstrates seasonal and long-term trends in groundwater elevations. Monitoring Entities may submit an existing groundwater monitoring plan that is part of a groundwater adjudication program, an AB3030 program, an IRWM program, or any other groundwater management program that satisfies the goals of CASGEM. If there are future changes in a monitoring plan that is already established with CASGEM, the Monitoring Entity should provide an update to DWR at that time.

Monitoring Plan Overview

Phase 2 of the CASGEM Online Submittal System will be available on May 18, 2011 for prospective Monitoring Entities to submit their groundwater elevation monitoring plans and detailed well information. Each CASGEM monitoring plan should describe the monitoring network and the monitoring plan rationale. The description of the well network should allow users of the CASGEM database to understand well coverage within the basin or subbasin. The monitoring plan rationale explains how the proposed monitoring is designed to capture the seasonal highs and lows and long-term groundwater elevation trends.

The basic components of a CASGEM monitoring plan include the following:

- discussion of the well network,
- map(s) of the well network,
- monitoring schedule,
- description of field methods,
- discussion of the role of cooperating agencies, if applicable, and
- description of the monitoring plan rationale.

The monitoring rationale, which explains how the plan will result in groundwater elevation data that demonstrates seasonal and long-term trends, may discuss any or all of the following information:

- history of groundwater monitoring in the basin,
- principal aquifer features of the basin (for example, multiple aquifers),

- groundwater conditions in the basin (for example, types, locations and timing of recharge and discharge),
- selection of wells for the CASGEM monitoring program (number, depths and distribution of the wells), and
- selection of the monitoring schedule.

If the well network contains any data gaps, the monitoring plan should also discuss the following:

- location and reason for gaps in the well monitoring network,
- local issues and circumstances that limit or prevent groundwater monitoring, and
- recommendations for future well locations (assuming funding for new wells or permission for access to existing wells becomes available).

Maps

The monitoring plan can include maps that show well locations, the boundaries of the area to be monitored and, ideally, the Monitoring Entity's jurisdictional boundary. The optimal density of monitoring locations will depend on the complexity of the basin. If multiple aquifers are present in a basin, maps depicting how each of the aquifers is monitored are useful. The location of gaps in the monitoring network and the location of potential future monitoring wells can also be identified on each map. A table that provides a list of wells could also be used to identify the wells in the network.

Schedule

The monitoring schedule should provide a clear description of the frequency and timing of monitoring. To demonstrate seasonal and long-term trends in groundwater elevations, basin-wide monitoring should be conducted at least twice a year to measure the seasonal high and seasonal low groundwater elevations for the basin. The seasonal high and low groundwater elevations typically occur in early spring and in summer or fall, respectively, but may vary from basin to basin. Monitoring data collected in more frequent intervals can also be submitted to CASGEM. The online system will be designed to accept a maximum frequency of daily measurements for each well. To ensure that each round of monitoring represents a snapshot in time for conditions in the basin or subbasin, it will be important to schedule each round of measurements for all the wells in the network within the narrowest possible window of time. To provide the details of the monitoring schedule, the plan should contain a table detailing the time and frequency of monitoring for each of the wells in the monitoring network.

Field Methods

Field methods are the standard procedures for the collection and documentation of groundwater elevation data. A description of field methods provides an indicator of the

quality, consistency and reliability of monitoring data to the users of the CASGEM database. Many Monitoring Entities already have established field methods for their groundwater monitoring programs that meet the following basic requirements:

- step-by-step instructions to establish the Reference Point,
- methods for recording measurements,
- methods to ensure the measurement of static (non-pumping) groundwater conditions,
- step-by-step instructions to measure depth to water, and
- forms for recording measurements.

Each Monitoring Entity will develop and implement monitoring protocols appropriate for the local groundwater basin conditions. Monitoring Entities who do not have established monitoring protocols can request assistance from DWR Region Offices to help develop appropriate protocols.

Well Information

In addition to the monitoring plan, each Monitoring Entity will also input the following detailed well information into the CASGEM Online Submittal System:

- Local well ID and/or State Well Number
- Reference Point Elevation (feet, NAVD88)
- Reference Point description
- Ground Surface Elevation (feet NAVD88)
- Method of determining elevation
- Accuracy of elevation method
- Well Use
- Well Status (active or inactive)
- Well coordinates (decimal lat/long, NAD83)
- Method of determining coordinates
- Accuracy of coordinate method
- Well Completion type (single or multi-completion)
- Total depth (feet)
- Top and bottom of screened intervals (up to 10 intervals)
- Well Completion Report number
- Groundwater basin of well (or subbasin or portion)
- Written description of well location
- Any additional comments

Groundwater Elevation Information (to be developed under Phase 3)

Phase 3 development of the CASGEM Online Submittal System will be available in late fall 2011. Phase 3 will enable Monitoring Entities to submit their groundwater elevation data and will provide public access to view the CASGEM database.

Monitoring Entities will submit the following groundwater elevation information for each well during each round of monitoring:

- Well identification number
- Measurement date
- Reference point elevation of the well (feet) using NAVD88 vertical datum
- Elevation of land surface datum at the well (feet) using NAVD88 vertical datum
- Depth to water below reference point (feet) (unless no measurement was taken)
- Method of measuring water depth
- Measurement Quality Codes
    - If no measurement is taken, a specified “no measurement” code, must be recorded. Standard codes will be provided by the online system. If a measurement is taken, a “no measurement” code is not recorded.)
    - If the quality of a measurement is uncertain, a “questionable measurement” code can be recorded. Standard codes will be provided by the online system. If no measurement is taken, a “questionable measurement” code is not recorded.)
- Measuring agency identification
- Measurement time (PST/PDT with military time/24 hour format)
- Comments about measurement, if applicable